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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,020	07/30/2001	Vieri Vanghi	4740-007	1043
24112	7590	03/07/2006		
COATS & BENNETT, PLLC P O BOX 5 RALEIGH, NC 27602			EXAMINER PARK, JUNG H	
			ART UNIT 2661	PAPER NUMBER

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/918,020

**Applicant(s)**

VANGHI, VIERI

**Examiner**

Jung Park

**Art Unit**

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on December 12, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 50-52 is/are allowed.
- 6) ☒ Claim(s) 1, 12, 27-36, 43, 44, & 53-56 is/are rejected.
- 7) ☒ Claim(s) 2-11, 13-26, 37-42 and 45-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 27-34 and 53-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In claims 27 and 53, what is meant by "sector loading estimates"?

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claim 27 is rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al. (US 2002/0151310, "Chung").

Regarding claim 27, Chung disclose the method comprising regulating reverse link data rates for access terminals in a first sector (*para.[0052] where the reverse rate  $R$  is regulated by  $R_{max}$  that has  $\beta$  element*) in dependence on a sector loading of a second sector to reduce reverse link interference in the second sector (*para.[0049] where ...the total interference from other sectors/cells is  $\beta$  times the total in-cell interference*) caused

at least in part by the access terminals controlled by the first sector (*para.[0049] where ... $\beta$  times the total in-cell interference*).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 35, 36, 43, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Chheda (US 6,188,914, "Chheda").

Regarding claim 35, Chheda discloses "a method of reverse link flow control in a wireless communication network comprising a plurality of sectors, the method comprising:

- receiving total sector interference estimates indicative of sector loading from a plurality of sectors (*col.2, ln.39-42 where ...the total interference from mobiles in all sectors*) within the network at a central processor (*BSC 18 fig.1*);
- controlling reverse link throughput in at least a first sector in dependence on the interference estimates of at least a second sector to reduce interference in at least the second sector (*col.2, ln.25-42 where ...reverse link pole capacity ...Frequency reuse factor ...the total interference from mobiles in all sectors*)."

Regarding claim 36, Chheda further discloses, "controlling reverse link throughput comprises adjusting one or more flow control parameters used by the first sector in regulating reverse link data rates of access terminals controlled by the first

sector (col.2, ln.25-42 where ...F is the frequency reuse factor as a flow control parameter)."

Regarding claim 43, Chheda further discloses, "the method of claim 35 further comprising receiving frequency reuse efficiency estimates from the plurality of sectors (col.2, ln.38-42 where F is a frequency reuse factor)."

Regarding claim 44, Chheda further discloses, "the method of claim 43 further comprising controlling reverse link throughput in one or more sectors, including the first sector, in dependence on the interference estimates (col.2, ln.25-42)."

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung and in view of Chheda.

Regarding claim 1, Chung does not explicitly disclose the determining step of an individual interference of a method of reverse link flow control. However, Chung disclose a determining step of i-th MS's SNR  $[E_b/I_{oi}]$  in para.[0060]. The individual interference  $I_{oi}$  is inversely proportional to i-th MS's SNR  $[E_b/I_{oi}]$  (*claim - determining an individual interference contribution of each access terminal*) and N in the equation is number of mobile stations in a sector as described in the table in para.[0003] (*claim - sector*) based

on a reverse data channel rate  $R_i$  (*claim - a reverse data channel rate*) of the mobile stations (*claim - access terminal*). The total sector interference is a simple summation of individual interference  $I_{oi}$  which is inversely proportional to  $i$ -th MS's SNR  $[E_b/I_{oi}]$  and total  $I_o$ , when user has same data rate, is shown in para.[0050] (*claim - estimating total sector interference for the sector based on the individual interference contributions of the access terminals*). The reverse rate  $R$  is upper-bounded by  $R_{\max}$  (para.[0052]; *claim - a reverse link control indicator regulating the reverse data channel rates*) based on the total sector interference  $I_o$ .

Chung teaches the total interference when the user' has same rate, but does not explicitly disclose the estimating step of total interference from access terminals within a sector. However, Chheda explicitly disclose (in col.2, ln.25-42) a frequency reuse factor,  $F$ , which is the ratio of the interference from mobile units within a sector to the total interference from mobiles in all sectors. That is, it is required to measure an individual interference of  $i$ -th MS in order to get the value of  $F$  and then estimate total sector interference within a sector (*claim - estimating total sector interference for the sector based on the individual interference contributions of the access terminals*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the SNR equation to determine the individual interference contribution of each access terminal and then estimate the total sector interference taught by Chheda. The motivation of introducing this individual interference is to calculate MS's interference in order to consider users with different rates (para.[0059] & [0060]) and then calculate the total sector interference.

Regarding claim 12, it is a claim corresponding to the determining step of claim 1 and is therefore rejected for the similar reasons set forth in the rejection of claim 1.

***Allowable Subject Matter***

9. Claims 50-52 are allowed.
10. Claims 2-11, 13-26, 37-42, 45-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. Claims 28-34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

12. Applicant's arguments with respect to claims 1-56 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung Park whose telephone number is 571-272-8565. The examiner can normally be reached on Mon-Fri during 7:10-4:40.

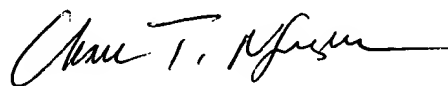
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP

Jung Park  
Patent Examiner  
Art Unit 2661  
March 6, 2006



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